

SKOFLO

Back Pressure
Regulator



SkoFlo Valve Model BPR5000D

OPERATION AND MAINTENANCE INSTRUCTIONS

***SKoFlo* INDUSTRIES INC.**

SkoFlo Valve Model BPR5000D

OPERATION AND MAINTENANCE INSTRUCTIONS

INSTALLATION PROCEDURES:

1. Install valve so that the flow is in the proper direction. The "HP INLET" connection and the "RELIEF" connections are 1/4" NPT and are marked respectively. See drawing SF-0242 for details.
2. The "Breather Vent" in the Spring Cap must remain open to allow proper spring movement. Should this port become plugged, the chamber would become sealed and spring movement could be less than necessary to control system pressure.
In normal operation, the Piston Cup Seal keeps the Spring Chamber free from fluids. Fluid must leak past the Piston Cup Seal to enter the Spring Chamber.
As a Safety Precaution, the Breather Vent may be piped to the chemical holding tank as long as the holding tank is vented.

START UP PROCEDURES:

1. Open the supply isolation valve to the back pressure regulator **slowly**.
2. Turn the pressure adjustment handle until you are at the desired pressure. Always start at a pressure below the set pressure and increase to the desired setting.
3. The back pressure regulator is now set and further adjustments aren't required. Tighten the lock nut on the handle to avoid inadvertent changes to the adjustment.

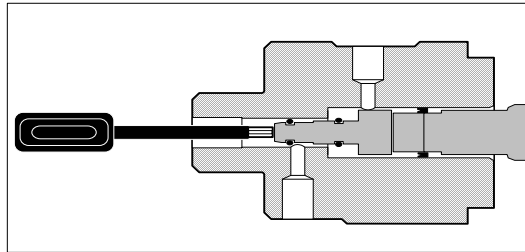
OPERATION NOTES AND WARNINGS:

1. The SkoFlo Back Pressure Regulator has hard seats and is not designed to provide complete "bubble-tight" shut off. If tight shutoff is required, separate isolation valves should be used for shutting off the flow. **Overtightening the handle will not further reduce flow.** If back pressure does not increase when turning the handle in, see "Trouble Shooting Improper Valve Performance".
2. Do not flow backwards through the SkoFlo valve. Internal seals are designed for one direction only and could possibly become dislodged.

MAINTENANCE:

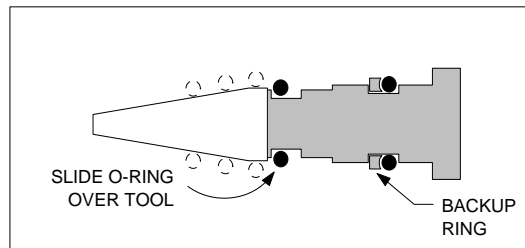
1. **Replacing Seals:** When replacing valve seals, it is recommended that the Seat Holder Installer Tool (P/N SF5000-T1) and O-Ring Installation Kit (P/N SF5000-T3) be used.
 - A. Remove SkoFlo valve from system.
 - B. Remove the base cap and the adjustment handle. Slowly push the internal parts out using a rod, hex driver, or similar tool. Use care to avoid damage to the internal surfaces of the SkoFlo valve. (See Figure I). Remove old seals and backup rings.

Figure I



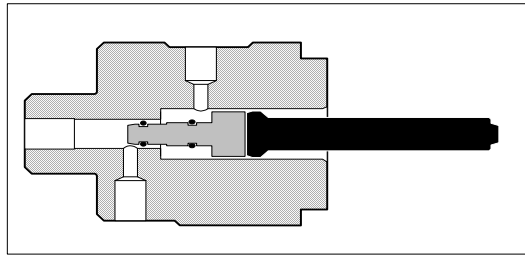
- C. Lubricate new seat holder seals with Parker Super Lube or equivalent. Slide seals onto seat holder using the O-Ring Installation Kit (See Figure II). Install backup ring on low pressure side of o-ring. Make sure the backup ring is lined up at the joint.

Figure II



- D. Using large end of Seat Holder Installer Tool, guide seat holder and seal into the body. Use caution not to push too fast which can damage the seal. (See Figure III).

Figure III



- E. If replacing the piston seal, the piston / pin holder must be disassembled. Using correct size wrenches for both the piston and pin holder, unscrew the pin holder. Careful not to drop the pin and pin spring inside. Lubricate piston seal with Parker Super Lube or equivalent. Slide seal onto piston (orient seal correctly). Place pin spring and pin into pin holder. Apply **high strength** thread locking compound to the pin holder threads, and screw into the piston. Carefully slide the complete assembly into the valve body. (Using thumb pressure with a slight wiggle motion will ease the seal into the body cavity). Push the piston into the body as far as it will go.
 - F. Set the spring stack assembly into the base cap (orient as shown in "Assembly Section / Parts List").
 - G. Lubricate base o-ring with Parker Super Lube or equivalent. Place o-ring into base of threads on body. Screw base cap onto body hand tight.
 - H. Install adjustment handle into the body.
2. **Replacing Seat Holder Assembly:** When replacing the seals on the Seat Holder, it is recommended that the O-Ring Installation Kit (P/N 5000-T3) be used for reassembly.
- A. Disassemble and reassemble the SkoFlo valve using new seals as described in the "Replace Seals" section above.
3. **Replacing Piston / Pin Assembly:**
- A. Disassemble and reassemble the SkoFlo valve using new seals as described in the "Replace Seals" section above.

TROUBLE SHOOTING IMPROPER VALVE PERFORMANCE:

<u>SYMPTOM</u>	<u>CAUSE</u>	<u>REMEDY</u>
1. No Flow	Upstream filter is plugged.	Clean or replace filter element.
	Back Pressure Regulator is plugged.	Take apart and clean. Correct cause of plugging such as leaking filter.
	Supply valve is shut off.	Open valve <u>slowly</u> .
	Discharge line is shut off.	Open valve.
2. Excessive Fluctuations in pressure(some fluctuation is normal)	Piston Springs are not installed properly.	Install springs in accordance with drawing SF-0242
	Seat or pin worn or damaged.	Replace seat holder or pin.
3. Back pressure not being controlled by handle	Piston Springs are not installed properly.	Install springs in accordance with drawing SF-0242
	Seat or pin worn or damaged.	Replace seat holder or pin.

RECOMMENDED SPARE PARTS:

<u>QTY</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	BPR5000D-5-STD	Seat Holder with seat (Qty 1 for each 20 valves of flow dash size 1)
1	BPR5000D-5-XL	Seat Holder with seat (Qty 1 for each 20 valves of flow dash size 2)
1	BPR5000D-5-XXL	Seat Holder with seat (Qty 1 for each 20 valves of flow dash size 3)
1	BPR5000D-20	Seal Kit (Qty 1 for each 20 valves)

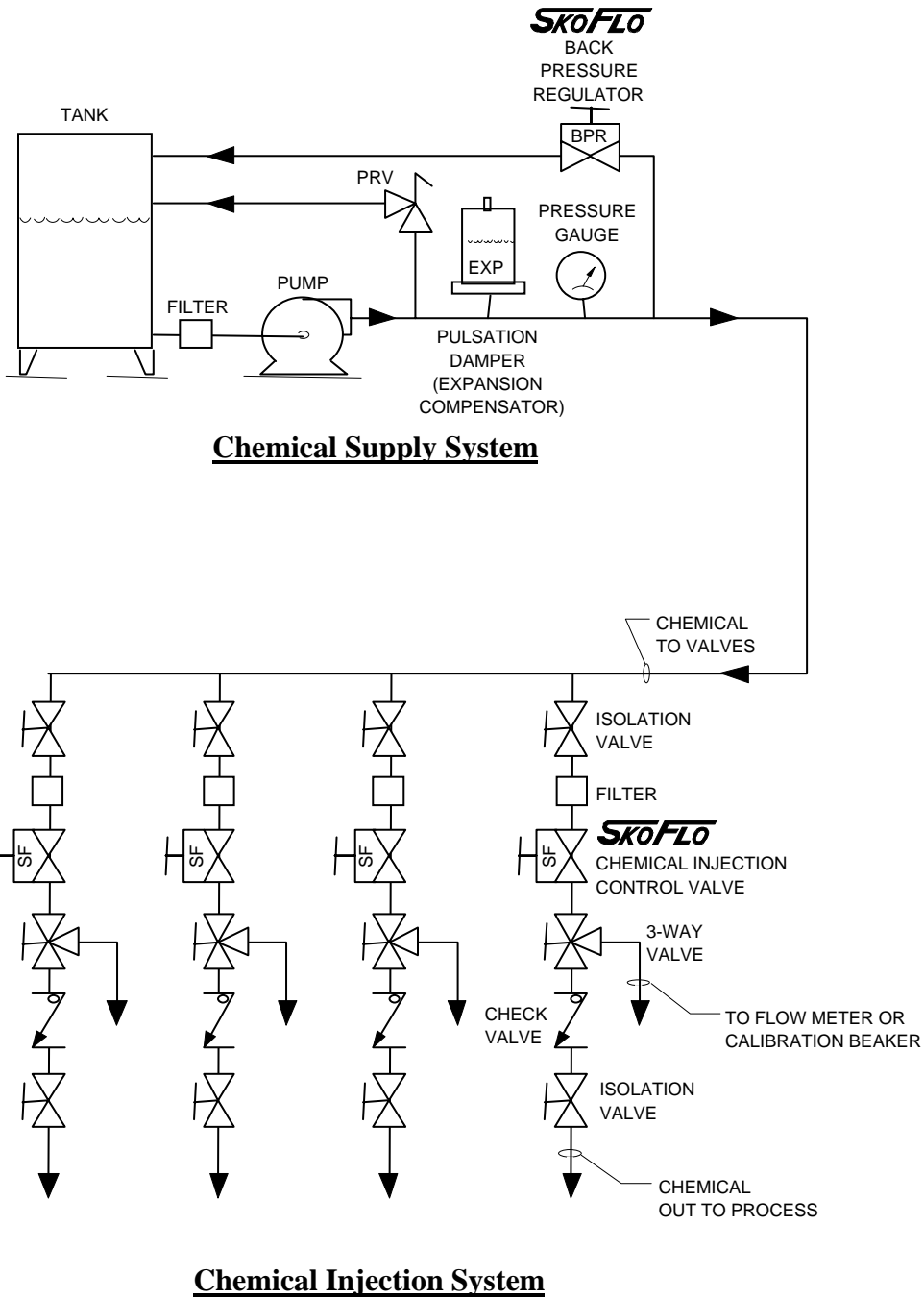
STORAGE:

1. When storing SkoFlo valves prior to first use, it is recommended that the valves be stored indoors. If stored outdoors, apply a light coating of protectant to the exterior of the valve. The shipping plugs in the HP INLET, RELIEF and VENT should remain in place.
2. When storing SkoFlo valves after being in use, dismantle, thoroughly clean and reassemble. Then store as noted in number 1 above.

Please call the factory in Woodinville, Washington USA at phone number (425)485-7816 if you have any questions.

E-Mail: butch.short@skoflo.com

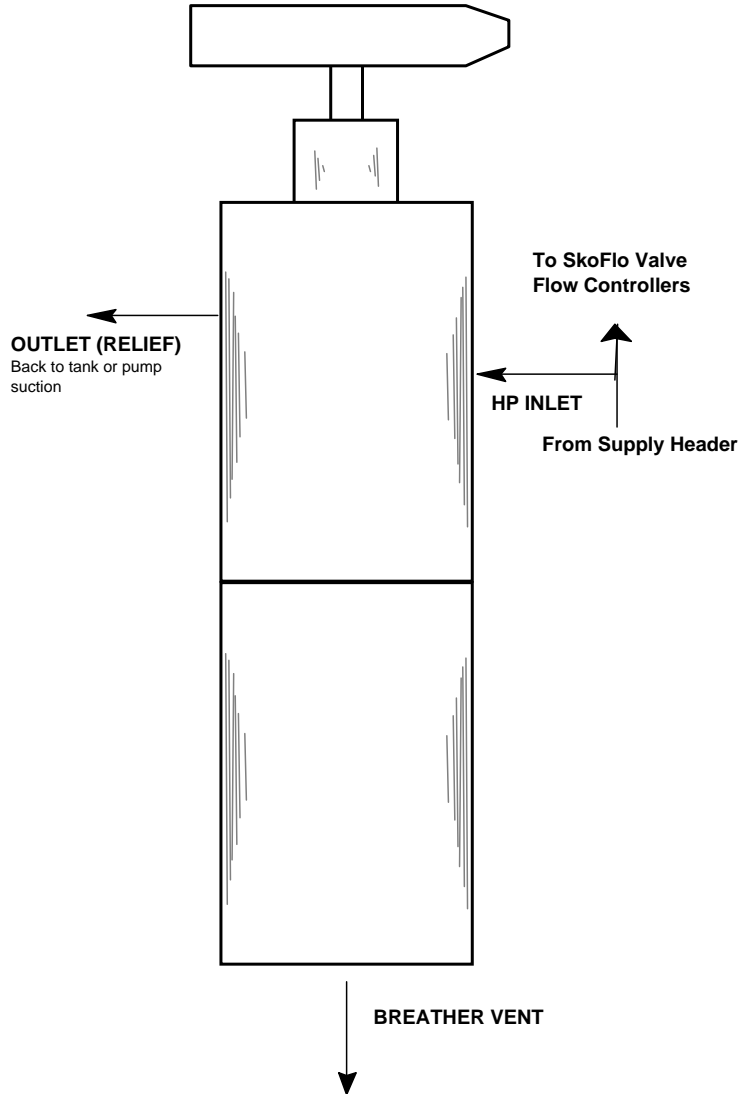
Multi-Point System Sample Schematic



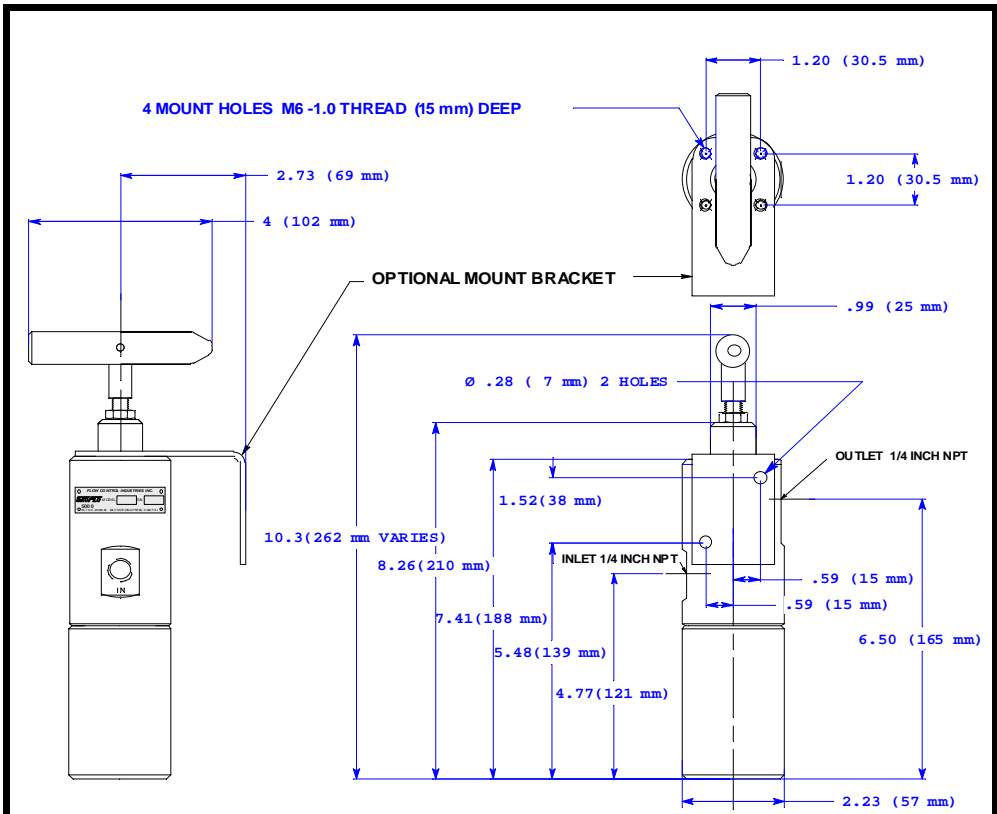
Notes:

- 1. Any number of injection points can be served by a single pump and header system. The only limitation is the flow capability of the pump.**
- 2. Check valve must be installed within 5 feet from the SkoFlo valve.**

**PIPING SCHEMATIC TO HOOK UP
BACK PRESSURE REGULATOR**



SkoFlo Valve Model BPR5000D		SkoFLO INDUSTRIES INC. Woodville, WA	
SCALE: NONE	APPROVED BY:	DRAWN BY: FJG	
DATE: 8/12/93		REVISED: 3/3/04	
BACK PRESSURE REGULATOR HOOK UP SCHEMATIC		DRAWING NUMBER SF-0031	REV D

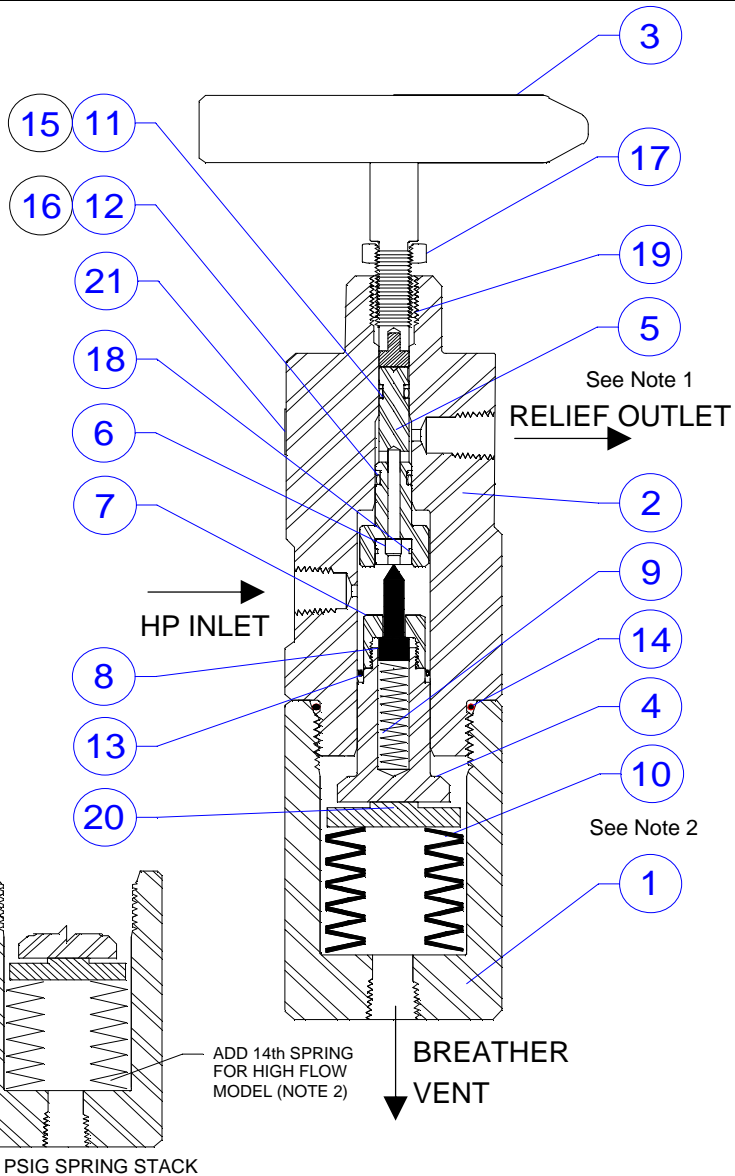


VALVE SPECIFICATIONS:	
WORKING PRESSURE:	5,000 PSI (345 BAR)
FLOW RATE RANGES:	10 TO 2,000 GPD (19 TO 7,500 L/D) WITH MINIMUM 500 PSI (35 BAR) ACROSS VALVE
MATERIALS WETTED BY FLUID:	316 STAINLESS NITRONIC STAINLESS, CERAMIC
SEAL MATERIALS:	TEFLON, VITON CONSULT FACTORY FOR OTHER SEAL MATERIALS
TO ORDER:	SPECIFY BPR5000D

UNCONTROLLED COPY
FOR INFORMATION ONLY
NOT KEPT UP TO DATE

UNLESS OTHERWISE SPECIFIED	SIGNATURES	DATE
DIM. ARE IN INCHES (MM)	DRAWN MK	3/3/04
2 PL. DEC. ± .01	CHECKED	
3 PL. DEC. ± .005	ENGRG	
ANGLES ± 1°	ISSUED	
FRACTIONS ± 1/64		

SkoFlo INDUSTRIES INC. WOODINVILLE, WA		
SkoFlo Valve Model BPR5000D OUTLINE DIMENSIONS		
SIZE B	REV: A	DWG NO. SF-0240
SCALE NONE	SHEET 1 OF 1	



MATERIAL LIST - Sko-Flo Valve BPR5000D					
ITEM	QTY	PART NO.	MRP NO	DESCRIPTION	MATERIALS
1	1	BPR5000D-1	20234	BASE CAP	NITRONIC 60 SS
2	1	BPR5000D-2	20233	BODY	316L SS
3	1	BPR5000D-3	22211	ADJUSTMENT HANDLE	316L SS (ROLL PIN 304 SS)
4	1	BPR5000D-4	20237B	PISTON	316L SS
5	1	BPR5000D-5	SEE CHART	SEAT HOLDER	NITRONIC 60 SS
6	1	SF5000-6	NOT SEPARATE	SEAT	CERAMIC
7	1	BPR5000D-7	20238	PIN HOLDER	316L SS
8	1	BPR5000D-8	20200	PIN	CERAMIC
9	1	BPR5000D-9	71002074	PIN SPRING	316 SS
10	varies	See Note 1		PISTON SPRINGS	17-7 SS
11	1	SF5000C-11	SEE CHART	O-RING (ATM)	VITON, EPDM or KALREZ
12	1	SF5000C-12	SEE CHART	O-RING (SEAT)	VITON, EPDM or KALREZ
13	1	SF5000-12	SEE CHART	CUP SEAL (PISTON)	TEFLON/ GRAPHITE/ 316 SS
14	1	SF5000NB-16	SEE CHART	O-RING (BASE TO BODY)	VITON, EPDM or KALREZ
15	1	SF5000C-27	SEE CHART	BACK UP RING FOR ITEM 11	TEFLON w/ GLASS FIBERS
16	1	SF5000C-28	SEE CHART	BACK UP RING FOR ITEM 12	TEFLON w/ GLASS FIBERS
17	1	SF5000C-17	71002111	LOCK NUT (HANDLE)	316 SS
18	1	SF5000C-18	SEE CHART	O-RING (SEAT)	VITON, EPDM or KALREZ
19	1	SF5000C-19	20096	HANDLE BUSHING	NI-BRONZE
20	1	BPR5000D-31	10179	SPRING WASHER	316 SS
21	1	SF5000-25	21408	NAMEPLATE	302 SS

NOTES: 1. Piston Spring stack shown (11 BPR10000-10) is for 0-2500 psig set range. 22111
 For 2000 - 5000 psig set range, spring stack consists of 10
 BPR-B-10 springs (see detail). 22112

2. Seat Holder and Seal Kit CHART on Next Page

SkoFlo Valve Model BPR5000D		SkoFlo INDUSTRIES INC. Woodville WA	
SCALE: NONE	APPROVED BY:	DRAWN BY: FJG	
DATE: 10/11/99		REVISED: 2/27/04	
BPR5000D BACK PRESSURE REGULATOR ASSEMBLY SECTION / PARTS LIST		DRAWING NUMBER SF-0242	REV D

SKOFLO INDUSTRIES INC.

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P.O. Box 1728, 14241 NE 200th, Bldg A, Suite B
Woodinville, WA 98072 USA
425.485.7816 FAX 425-368-1696

INDIVIDUAL "O" RING SELECTION BPR5000D

PART NO	MRP NO	
SF5000C -11	71001730	VITON
	71001729	EPDM
	71001733	KALREZ
SF5000C -12	71001739	VITON
	71001738	EPDM
	71001741	KALREZ
SF5000 -12	71001871	CUP SEAL
SF5000NB -16	71001834	VITON
	71001833	EPDM
	71001836	KALREZ
SF5000C -27	71001887	BU RING
SF5000C -28	71001891	BU RING

SEAT HOLDER SELECTION TABLE FOR BPR5000D

PART NO.	DESCRIPTION
22013	SEAT HOLDER, BPR5000D, XL, KALREZ
22016	SEAT HOLDER, BPR5000D, XLS, KALREZ
22019	SEAT HOLDER, BPR5000D, XXL, KALREZ

SEAL KIT SELECTION TABLE FOR BPR5000D

PART NO.	DESCRIPTION
22090	SEAL KIT, BPR5000D, VITON
22091	SEAL KIT, BPR5000D, EPDM
22092	SEAL KIT, BPR5000D, KALREZ
22374	SEAL KIT, SF5000C, VITON B
22375	SEAL KIT, SF5000C, HNBR

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Our focus is on you our customer and for ISO 9001:2000 compliance we have prepared and request that you take the time to complete this **customer satisfaction survey**.

Company:	
Contact:	
Email:	
Phone:	

Please rate following categories	Highly Dissatisfied			N/A		Highly Satisfied	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Product Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Product Features	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. After sale support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Implementation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Score from 1 (Low) to 7 (High)	(Low)			N/A		(High)	
	1	2	3	4	5	6	7
Recommend SkoFlo to friend or colleague.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Likely to Purchase Products from SkoFlo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall quality of relationship with SkoFlo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall level of satisfaction with SkoFlo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall level of satisfaction with respect to Product Valve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall level of satisfaction with respect to product engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level of confidence of SkoFlo abilities to provide compliant product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:							